This object is achieved by an electrophoresis device having an injection channel with plural exposed application areas, one area adjacent to each separation channel on a predetermined side of the respective crossing point, each application area being designed and configured for taking samples by means of a micro-dispenser and a separation method for performing electrophoresis, wherein the sample channels are loaded with samples by means of a micro-dispenser, and the samples are introduced into the injection channel near the crossing point between the injection channel and one respective separation channel for purposes of sample separation, and transferred into the separation channel by exposing the injection channel to an electrical field, with electrophoretic separation taking place in this separation channel~~procedure with the features outlined in claims 1 and 8. Advantageous embodiments of the invention are defined in the subclaims~~.